Installation and Operation Guide

QBox 5

Version 2.20

EN

www.autocue.com

QBox 5 Version 2.20

Autocue have been serving the broadcast industry since the mid-1950s when Autocue in London supplied the very first prompters via their rental divisions.

Creating broadcast history. The two companies merged in 1984 under Autocue Group and, with the introduction of the QSeries family of software, became the only company to offer the television industry a single solution for all transmission, newsroom, scripting and prompting requirements.

Prompter of choice around the globe. Autocue Group is known worldwide for its service and dependability, serving such prestigious clients as the BBC, Bloomberg, NBC and CNN. The Group's prompting solutions are compatible with all newsroom systems on the market and are in use worldwide by broadcasters, production professionals, government facilities and corporate producers requiring excellence in prompting and newsroom automation solutions.

For further information, please visit either web site shown at the bottom of this page.

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Preface

About this guide

This guide provides:

- an overview of QBox
- guidance on installing QBox
- guidance for configuring and QBox hardware
- an overview of the scroll controls that are used with QBox

QBox is part of Autocue's suite of software and hardware prompting products.

Audience

This guide is for personnel in the media production industry wanting to set up and operate a QBox.

This guide is suitable for novices as well as expert users of a product from an Autocue Group company.

How to use this guide

It is recommended that you follow the step-by-step procedures for setting up and operating QBox from beginning to end.

Other non-procedural information in this guide can be used for reference purposes.

Associated documentation

This document describes the installation, configuration and operation of the QBox hardware.

If you are using this software with an on-camera unit or executive speech prompter from an Autocue Group company, please also read the installation and operating manuals for that equipment.

If you are integrating QBox with a newsroom automation system from Autocue, or a third-party vendor, you will need the appropriate API config-uration documentation.

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QBox (v2 API) Quick Reference Card

Components

A standard QBox unit is supplied with:

- A IEC 240V cable
- Any scroll control devices that you have ordered
- An Ethernet cable and a crossover adaptor plug.

Connections

Plug all required connections before switching your QBox on.

Attach BNC cables to the required number of video outputs.

Attach the appropriate network cable

Insert the IEC 240V power connection into the IEC socket on the back of the unit.

The QBox will automatically start.

Operation

1: Starting QBox

Press the main power button on the front of the unit. (If the unit does not automatically start when power is supplied.)

2: Stopping QBox

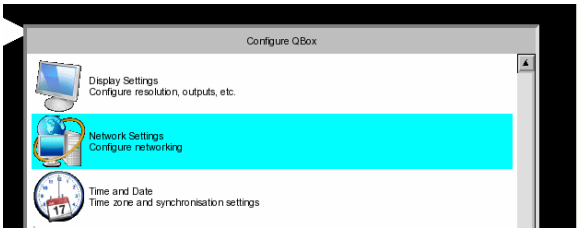
Press F8 to access the configuration interface and select Shut down QBox and power off

(In an emergency, press and hold the main power button for four or more seconds.)

Configuration

Configuration of your QBox requires a standard keyboard be attached to the unit.

1: Network connection



Select F8 to open the Configuration interface.

Select Network Configuration

Select lan0 and then set the necessary parameters.

Press Enter to restart the network interface.

Click the required buttons to return to prompt mode.

2: Wireless connection (Optional)

Select F8 to open the Configuration interface.

Select Network Configuration

Select wlan0 and then set the necessary parameters.

Press Enter to restart the network interface.

Click the required buttons to return to prompt mode.

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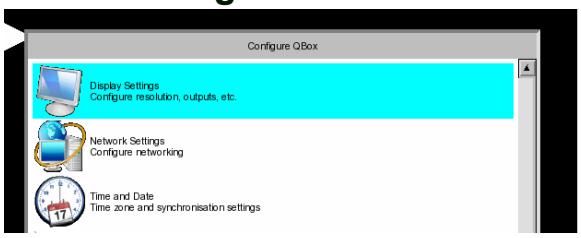
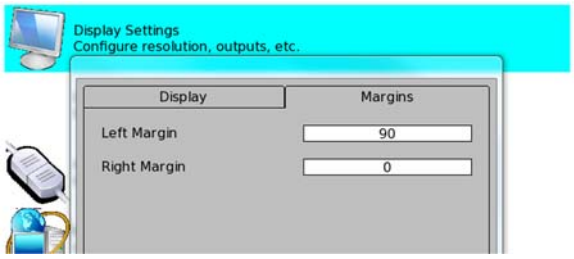
3: Set margins



Select F8 to open the Configuration interface.

Select Display Settings

Select the Margins tab and then set the necessary parameters.



Press Enter to save changes.

You must restart the QBox for the changes to take effect.

4: Scroll controls

USB controllers such as ShuttlePRO, Shuttle Xpress and wireless presenter mouse are “plug and play” devices and use their default settings when connected to a QBox.

For other types of controllers, select F8 to open the Configuration interface.

Select Serial Controllers.

Select the required controller for each serial port on the QBox.

Click the required buttons to return to prompt mode.

Prompting scripts

1: QMaster operation

Scripts can be sent to a QBox in several ways. The primary method is via a connection between the prompting computer and QBox using an Ethernet cable.

Click the Begin Prompting button in the QMaster software to transfer a script or runorder to a QBox.

2: Stand-alone operation

Alternatively, a script may be loaded directly via FTP, USB or (optional) Bluetooth transfer.

Export a script or runorder as a series of plain text files and save them to the appropriate device.

Text files must be saved using UTF-8 format encoding.

Press F2 on the QBox and select Load Runorder.

Select the appropriate loading method.

Further information

Refer to the QMaster user guide that came with your Autocue equipment for detailed information about configuring and operating your QBox.

1: Technical Support

Hardware & Software Support:

Email: SoftwareSupport@autocue.com

Email: HardwareSupport@autocue.com

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SECTION 1: Prompting Software Overview

Autocue's revolutionary prompting and scripting application suite offers a range of prompting solutions to match your needs and your budget. From the entry-level QStart through the QPro to the fully-featured QMaster for the more demanding, live broadcast environment.

These prompting applications were developed in response to customer needs for a modular product set that can be upgraded to more feature-rich variants at any time.

NOTE: Autocue products are designed to interface with prompter display units from most manufacturers.

1.1: The prompting software suite

1.1.1: QStart

QStart is Autocue's entry-level prompting solution.

Install the software on a computer and connect it to a prompt display unit and you are ready to begin work. Being a software-scroll application QStart needs no additional hardware.

Ideal for simple prompting environments, QStart supports prompting and editing of single scripts. The application has limited editing capabilities and prompting is controlled via a standard PS2 or USB mouse.

If you need to manage multiple scripts in a runorder or prompt in more challenging environments you should consider either QPro or QMaster. To upgrade to either product, you will need to purchase and install a new license key.

1.1.2: QPro

QPro is Autocue's professional software-scroll prompting application. QPro's extensive array of features, including a full script edit suite, conference system integration, PowerPoint integration, on-screen preview of the prompt output, is targeted at prompting professionals who want a robust and fully-featured prompting solution but do not need the advanced features of QMaster.

QPro is controlled either via the computer mouse or a number of dedicated scroll control devices.

1.1.3: QMaster

Autocue's IP-based networked prompting system, involving a software application on the control computer that communicates with the QBox to scroll the script.

QMaster is targeted at professionals who want a robust, resilient and fully-featured prompting solution for use in:

- Demanding live broadcast productions and conference events
- News broadcasting - both studio and field
- Dynamic and creative shoots, which require wireless connectivity or specialised prompting set-ups
- Multi-location prompting systems that are operated over a LAN/WAN or the Internet

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QMaster is supplied with Autocue's QBox hardware scroll unit which interfaces with the prompter. The QBox advantages include:

- substantially increased system reliability
- the best script image quality, and
- the ability to use a prompter in situations where previously it was considered impossible.

QMaster combines the advantages of the QBox with all of QPro's capabilities and features. It is supplied with a multi-button control unit, ideal for studio applications. Importantly it can be complemented with a number of value-adding extension modules:

- Wireless connectivity (to the central control computer and to control devices)
- Newsroom interface (to all mainstream newsroom computer systems)
- Multi-controller interface (to control a prompter with multiple controllers)
- Multi-head feature (allows each presenter to independently control their prompter while off air)

1.1.4: Feature summary

Feature		QStart	QPro	QMaster
Scripting	Edit single script	✓	✓	✓
	Open and edit multiple scripts		✓	✓
	Limited editing tools	✓		
	Comprehensive suite of tools		✓	✓
Rundown management			✓	✓
Interfaces	PowerPoint		✓	✓
	Conference systems		✓	✓
	Closed captioning		✓	✓
	Automated newsroom systems			✓
Scroll controls	Software	✓	✓	✓
	Computer mouse	✓	✓	
	Serial 2-button		✓	✓
	Serial multi-button			✓
	Wireless			✓
	Multiple			✓
Wireless operation				✓
Multi-head prompting				✓

1.2: Prompting hardware - QBox

QBox is a hardware scroll device with a difference. It supersedes the Autocue IMT card and delivers a step change improvement in prompting capability. Its main innovation is that it connects to the control computer via Ethernet and several other connection options providing

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a range of hitherto unachievable user benefits. The script and rundown information is stored on the QBox and can be scrolled either remotely from the central control computer or locally by a presenter using a scroll control. The link between the QBox and the control units can either be wired or wireless, thus untethering the prompter and the camera, opening up exciting new scenarios in which a prompter can be employed. In addition to opening up new usage models the QBox provides an unprecedented level of resilience to produce the most reliable prompting system ever.

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SECTION 2: QMaster Application Architecture

Autocue's QMaster software has been designed to operate on a standard computer and interface seamlessly with QBox prompting hardware using TCP/IP via a direct or networked connection.
The QBox hardware may also be operated as a standalone unit without a connection to a computer. After configuration, script information can be sent to the QBox through a variety of interfaces.

For detailed information about QBox configuration and operation, refer to Section 4: QBox Configuration and Operation.

NOTE: If required, QMaster can also control existing Autocue IMT prompting hardware if it is already installed.

2.1: QMaster and QBox operational scenarios

QMaster and QBox can be deployed with a direct physical connection or via a cabled or wireless network connection.

Where required, QBox may also be deployed as a standalone unit either with or without operator support.

QBox as a standalone device. When QBox is used as a standalone device, a connection exists with the prompt display unit and external devices for loading and controlling scripts. No permanent connection exists between the QBox and a computer although it is possible to temporarily connect one to make configuration changes or upload script data.

QBox is particularly suitable for use in the field because:

- the crew does not have to carry a heavy computer. All data can be placed on

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portable devices such as a mobile phone, PDA or USB memory device.

- Less equipment allows shooting to take place in relatively inaccessible locations, such as a war torn city or a jungle.
- Wireless connectivity allows input and control devices to be moved around to different physical locations.
- Fewer crew are required. It is possible to have a crew limited to just a cameraman and a presenter thus reducing operational costs.

2.1.1: Studio deployments

Common studio architecture provides a more static setup where components are often fixed permanently to one camera and are less likely to be moved around or swapped to alternative positions. An existing LAN network infrastructure is often already established.

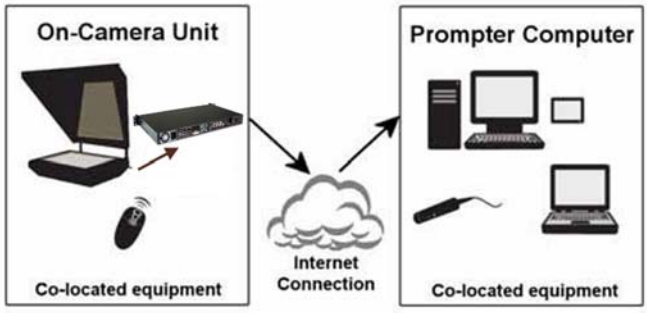
QMaster and QBox co-located. In a simple studio deployment, the computer running the QMaster software is physically positioned with a QBox, scroll control device and a prompt display unit. An operator has direct control of the script editing and prompt output.

QMaster and QBox in the same building. The ability to network computers and QBoxes provides resilience ensuring that broadcasts are not interrupted. QBoxes can be connected to primary and secondary computers so that if one computer fails, control of scrolling is automatically transferred to a backup computer.

The QMaster computer can be located away from the studio and the QBox.

Scrolling can be controlled either directly by the QMaster operator or remotely by the presenter in the studio.

Using an Internet connection allows QMaster, a QBox and prompt display unit to be physically located almost anywhere in the world.



Multi-head prompting. Multi-head prompting provides the ability for one presenter to independently review parts of a script while another presenter is live on air reading from the same script. For example, in a distributed news broadcast the presenters in the main studio, a business journalist situated in a small studio at the stock exchange and a weather presenter at a remote exterior location could each have a separate QBox with the same rundown stored on it. While the newsreader is reading the news items, the sports presenter or weatherperson could scroll ahead to their part of the bulletin to check what is to be read. Either the presenter or the QMaster operator would be able to switch back so that the script or rundown is at the correct point when each of the presenters delivers their part of the bulletin.

Multiple scroll controllers. More than one scroll control can be connected either to the QMaster computer or to a QBox.

When multiple scroll controls are connected to the QMaster computer, operators can switch between different controls in order to find out the optimal scrolling capabilities of a controller.

When multiple scroll controls are connected to a single QBox, two presenters handling two different scroll controls, are able to present from the same script.

2.1.2: Large-scale field deployments

A field scenario does not usually include a network infrastructure with pre-installed computers and cables. A crew would normally deploy QMaster on a wireless network, or set up

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direct QMaster to QBox connections to alleviate the need for cumbersome and costly wiring.

Location shoot. A wireless network can be set up that allows QBox and a laptop computer with QMaster software already installed to be transported from one location to another. It is also possible to create a scalable wireless network with QMaster, which allows multiple QBoxes to be connected to multiple wireless devices and prompters, making QMaster suitable for use in larger open-air situations with shots from different locations such as a sports broadcast or an awards presentation ceremony.

2.1.3: Small-scale field deployments

In a small-scale field deployment, a QBox, computer and camera can be used by a news crew in more restrictive locations such as when embedded with a military force or reporting fast-changing emergency situations.

The wireless capability supports the use of remote scroll controls and downloading of scripts.

QBox on location. A QBox is usually deployed with a prompt display unit and a connection to a computer running the QMaster software. An operator would control the prompting and make necessary changes to the script or configuration while the presenter and cameraman do their work.

QBox has been designed to be independent of a computer when required. In a field scenario without a computer it is possible to use alternative devices to control prompting.

Standalone QBox with an operator.
An operator and a presenter can use a laptop computer to control scripting or if deployed without a computer connect a USB memory device direct to a QBox in order to upload scripts. As few or no physical connections are required, the operator can follow a mobile camera and operate scripts remotely, while carrying the QBox and prompt display unit. The presenter can present without handling equipment in situations such as a walkabout documentary, or a shoot that requires varying angles and human movement.

Standalone QBox without an operator. When you have to prompt in inhospitable locations you need to have as few people as practical and equipment that is light-weight and easy to set up. This scenario allows you to have a crew consisting of a single presenter and a cameraman. Scripts can be uploaded from a mobile phone or a USB memory device in order to upload scripts. The prompter would be attached to the camera and the QBox carried on the cameraman's belt. As there is no operator, the presenter would use a wireless controller to scroll pre-configured scripts stored on the QBox.

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SECTION 3: QBox Hardware

QBox is the latest generation of prompting hardware from Autocue.
The design of QBox allows the inbuilt prompting intelligence to be distributed away from any control computer allowing more scalable prompting solutions.

Benefits of QBox.

- Reliability
  Rarely revert to hard copy again. QBox stores a copy of the current rundown or script. This copy remains even if the QBox is disconnected or powered down. If the control computer crashes, or a connection is lost, the QBox continues to scroll the script at the same speed.
  With a local hand control a presenter (or operator, with a preview screen) can control the script until the control computer reboots at which point the control of the scrolling script is automatically returned to the computer.
  In the event of a total power failure, QBox takes less than 30 seconds to reboot and return to the same point in the script at which the power failed.
- Versatility
  QBox can be co-located with a prompter display unit and a local control device. Alternatively, Ethernet connections allow images from one QBox to be sent to many prompting monitors over greater distances than a composite video connection. An Internet connection allows a QBox to be controlled from almost anywhere in the world.
  QBox can also act as a back-up in case the control computer is disabled.
- Affordability
  No need for back-up computer and fewer delays to production.
  Fewer resources needed enabling crew sizes to be reduced.
- Quality
  Professional output maintained throughout.

3.1: QBox components

A QBox installation or deployment comprises a range of equipment and connections depending on the situation in which it is to be used.

3.1.1: Supplied equipment

When you purchase a QBox from Autocue, the following items will be supplied:

- A standard QBox unit
- A IEC plug 240V
- Any scroll control devices that you have ordered

NOTE: If the QBox is to be connected to an existing installation you will not receive a USB dongle.

3.1.2: Other required equipment

A QBox installation also usually requires the following pieces of equipment.

Prompt monitor. A prompt monitor displays output from QBox allowing presenters to read their prepared scripts. A QBox is usually connected directly to a prompt monitor. Alternatively, a distribution amplifier (DA) can be installed between the prompt monitor and QBox

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to allow QBox output to be displayed on multiple prompters.

Computer. QMaster software installed on a computer allows scripts to be edited and managed by an operator. QMaster can be installed on a laptop or desktop computer, which is then connected to QBox.

Scroll control device. QBox can control the script on a prompter display unit using a variety of devices. For details about supported equipment, refer the scroll controls section of the user guide for the software you have purchased.

Cabling. The following cables are used for connecting QBox to other hardware.

- Output from a QBox can be composite video signal or SDI. You will require the appropriate cable for the chosen output signal to connect your QBox to a prompt monitor or other display screen
- A RJ45 network cable is required in order to connect a QBox to a network

USB Drive. A USB drive can be used to store and transfer scripts to be loaded for prompting. (Formatted as FATt32)

NOTE: If requested, Autocue can provide all of the above items but details of required cable lengths and the specifications of other equipment must be provided.

3.2: QBox physical characteristics

CAUTION: A QBox is a static sensitive device. Use appropriate ESD precautions, especially if you have removed the cover from the device.

NOTE: The precise physical position of some connectors may differ slightly to a QBox your receive.

3.2.1: QBox front panel

The following connections and indicators are on the front of a QBox:

- two USB connector
- one hard disk drive activity indicator LED
- one illuminated power On/Off button

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3.2.2: QBox rear panel

There are a variety of connectors on a QBox which allow you to connect the unit to many different input and output devices.

Descriptions of the connectors are given in the following sections.

BNC connectors. The BNC output is used to connect your QBox to video display units such as a prompter or composite monitor for previewing. The BNC output is also used to connect QBox to a distribution amplifier that allows digital signals going to multiple prompters to be converted to analogue.

VGA port. A DVI port is used for connecting to a VGA monitor. A VGA monitor is used to preview QBox Linux console.

Serial port. Serial ports are used to connect serial devices to QBox. These include serial mouse devices and dedicated hand controls.

Ethernet port. QBox has a socket for a RJ45 Ethernet cable used when connecting to a network.

USB ports. USB ports are used to connect USB devices such as a USB drive, USB scroll control and USB dongle.

Power. QBox operates on a 240V power supply.

3.2.3: QBox internal configuration

The QBox mainboard contains the processor, chipset and control chips.

QBox includes a BNC extension for the board. All other hardware operations are preconfigured, and there is no need for the user to make changes to jumpers or dipswitch settings on the mainboard, or install extra software drivers to facilitate operation with the QMaster software on the PC.

A QBox also supports wireless connections and controls. The mainboard has an expansion slot into which a wireless card can be fitted.

QBox includes solid-state memory with enough capacity for approximately 50 hours of script and rundown information.

3.3: Set up QBox

3.3.1: Connect QBox to a prompter or monitor

A composite monitor or prompter should be connected using a composite cable with BNC connectors. Attach the cable to one of the three Video Out BNC ports on the QBox and the other end to the Video In BNC port on the prompter/ monitor.

NOTE: Refer to Autocue's prompter documentation for information on the prompter port configuration.

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3.3.2: Connect any peripherals to the QBox

The peripherals you need to connect are a keyboard and a scroll control.

Keyboard. A keyboard is used to configure a QBox. After initial setup, you should only need to connect a keyboard if you need to make fundamental configuration changes.

Scroll Control. Connect a scroll control to the QBox. Refer to your software user manual for detailed information about types of controllers, Autocue supported scroll controllers, their respective features and how to configure them for use with the QBox.

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SECTION 4: QBox Configuration and Operation

QBox is the innovative output engine that is the world's only IP-based prompting solution providing a number of unrivalled benefits for those seeking the next generation of prompting software.
QBox is the new prompting standard, challenging previously accepted boundaries allowing you to control the prompt output from the QBox itself, or using a computer in another room, building or country.

4.1: QBox operating system

QBox includes its own customised operating system based on Linux.

4.1.1: QBox onscreen menus

QBox includes onscreen menus for checking and updating configurations. The onscreen menus are also used for key functions including loading scripts and rundowns from a source.

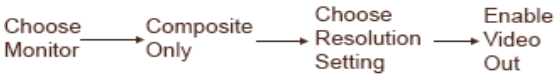
Accessing menus. Onscreen menus are displayed in prompt mode by pressing the F1 to F5 function keys on the keyboard connected to the QBox. When the unit is not in prompt mode, press the F8 function key.

4.1.2: Configure and test the QBox

Supply power. Connect the supplied QBox power cable to the IEC socket on the QBox back panel. If the QBox does not start automatically when connected to a power source, press the Power button.

Configure the monitor settings. To achieve the best performance from your prompter monitor you should ensure that you have selected the appropriate video setting on the QBox.

The diagram below outlines the steps to follow depending on the type of monitor you use.



- If your monitor accepts only a composite video signal then follow the "Composite Only" path.

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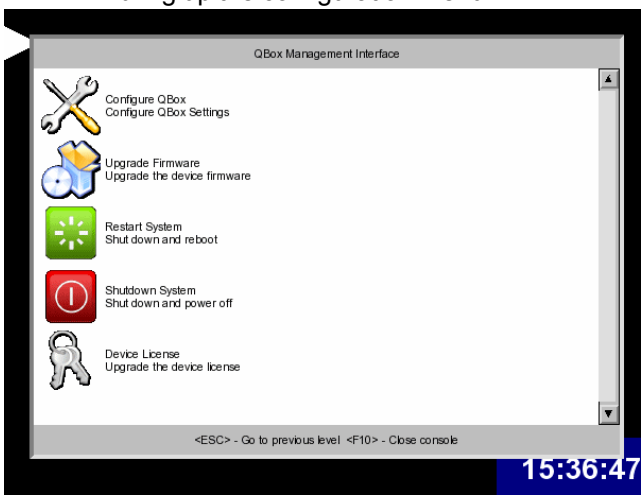
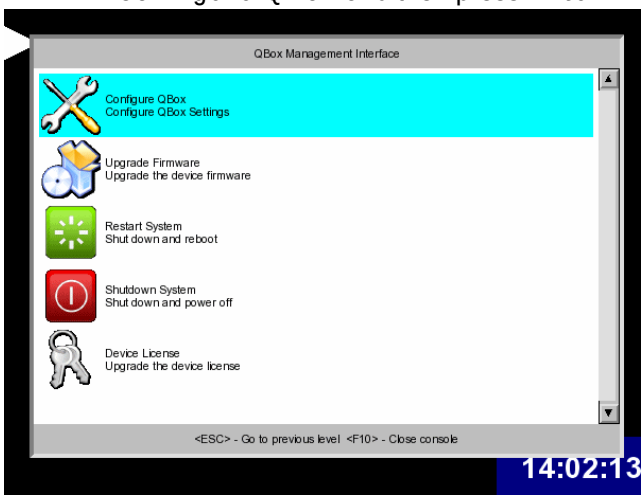
NOTE: The quality of the scroll output may be significantly degraded if both VGA and Composite output are in use, due to the differences in display format.

Use the following steps to configure the monitor output settings:

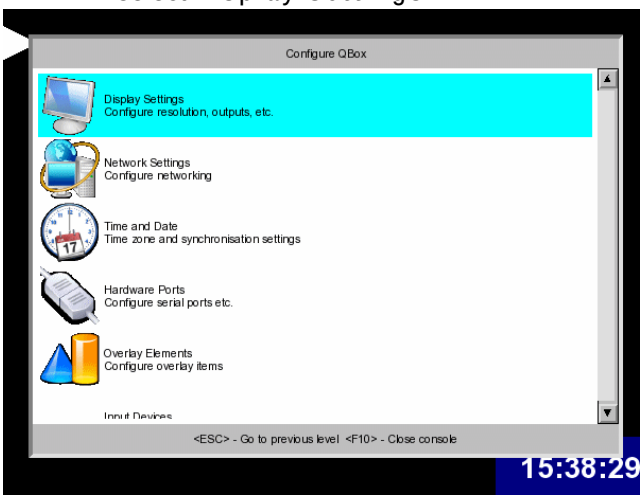
1. Press the F8 key on the QBox keyboard to bring up the configuration menu.



2. Use the Down arrow key to select Configure QBox and then press Enter.



3. Press the Right arrow key or Tab key to select Display Settings.



Press Enter to view the configuration options for your monitor from which you can choose the appropriate video output signal.

4. Select the setting for your monitor type and signal standard. Use the Tab key to move through the list and use the Space bar to select the appropriate setting.

The table below lists the recommended QBox display mode and output settings.

Signal Standard	Monitor Resolution	QBox Setting
NTSC	N/A	640 x 480 (NTSC Native)
PAL	N/A	720 x 576 (PAL Native)
SDI NTSC		640 x 480 (NTSC Native)
SDI PAL		720 x 576 (PAL Native)

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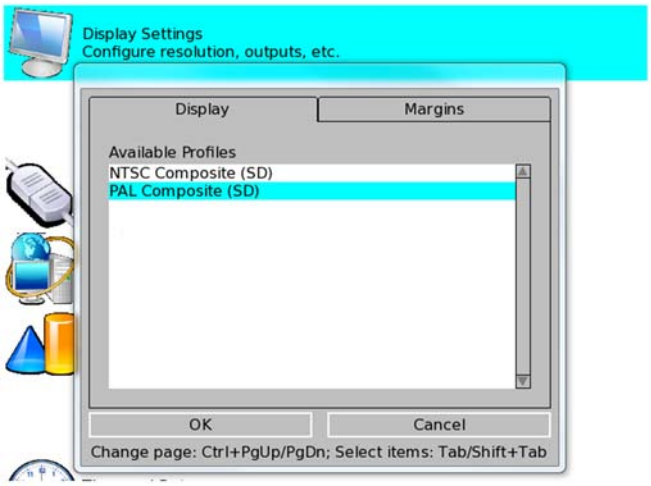
- If you have a composite monitor you must select either the NTSC or PAL standard for the display mode.



Your QBox is now configured so that you can operate it in stand-alone mode with a prompter. You can upload a script or rundown from a USB memory device and start prompting straight away.

If you wish to operate your QBox remotely using a computer running the QMaster software from Autocue the following sections outline the procedures to configure the connection to the QBox.

4.2: Basic operational checks

It is recommended that you conduct a number of operational checks to ensure that your QBox is functioning correctly.

4.2.1: Reboot and shutdown

Ensure that you are able to reboot and shutdown QBox.

CAUTION: If your QBox needs to be rebooted for any reason, ensure there are no USB memory devices attached to the unit.

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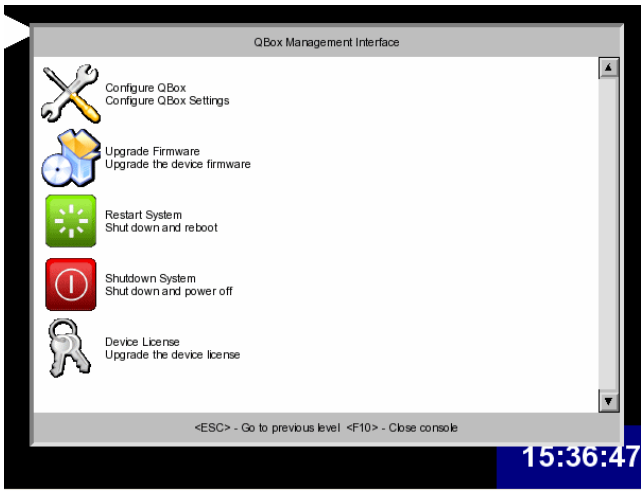
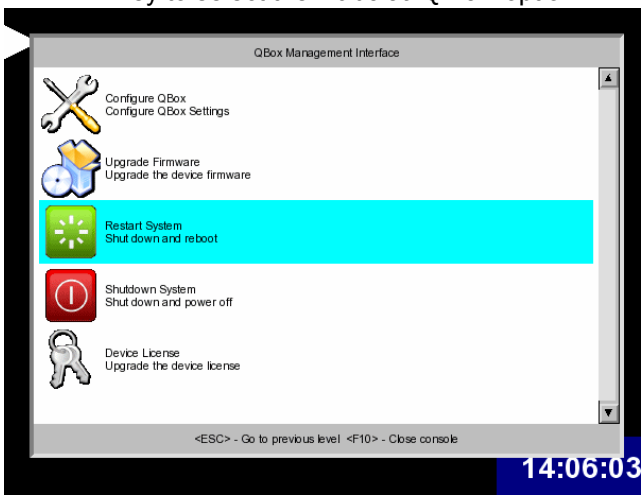
Rebooting QBox from the Configuration interface. 1.

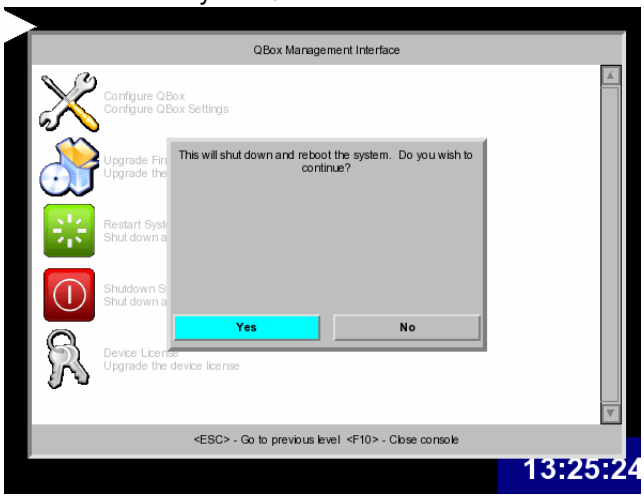
1. Press F8 to access the configuration task selection interface



2. Press either the Down or the Right arrow key to select the Reboot QBox option.



3. Press Enter.
4. You will be asked to confirm that you wish to reboot your QBox.

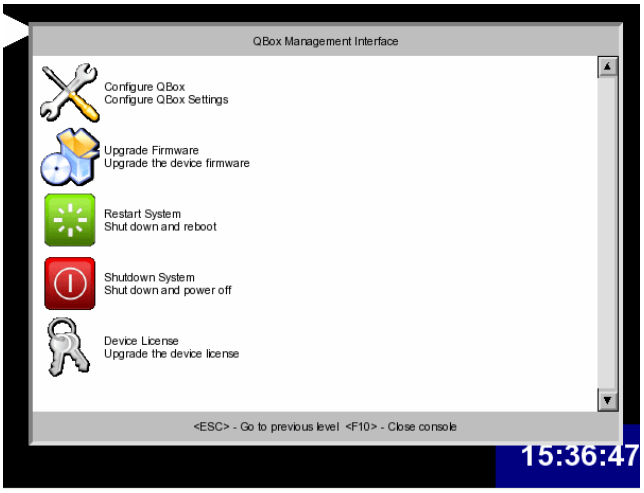


NOTE: The time taken for a QBox to reboot will vary depending on the number of active network interfaces that are configured on the device. Even if there is no physical connection, the operating system may take up to 15 seconds to check each active interface if the IPv4 setting is set to DHCP.

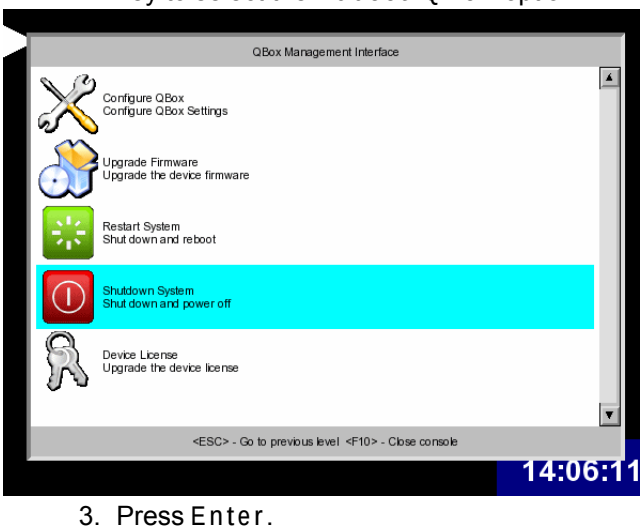
CAUTION: If your QBox needs to be rebooted for any reason, ensure there are no USB memory devices attached to the unit.

Shutting down QBox from the Configuration interface. 1.

1. Press F8 to access the configuration task selection interface



2. Press either the Down or the Right arrow key to select the Reboot QBox option.



3. Press Enter.

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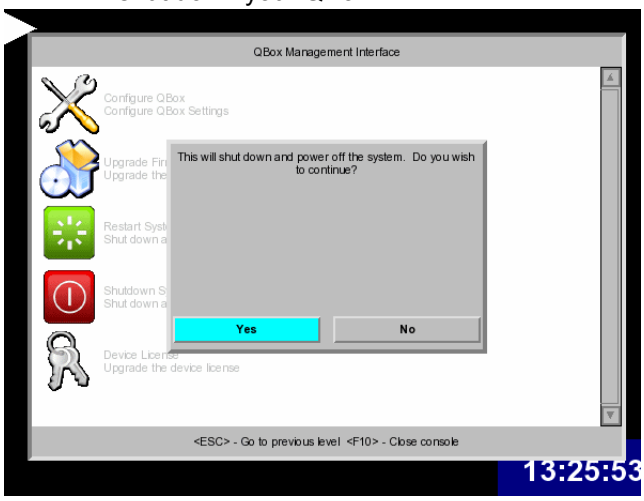
4. You will be asked to confirm that you wish to shut down your QBox.



4.3: Direct and network connections to a QBox

The number of QBoxes you plan to use will determine the type of connection required.

- If you plan to deploy a single QBox system then you can use a direct connection.
- If you plan to operate multiple QBoxes from a central control computer you will need to establish a small or large-scale network.

4.3.1: Ethernet network

An Ethernet connection should be used when using an existing network such as a LAN or when you wish to connect multiple QBoxes within the same system.

NOTE: It is possible to use an Ethernet connection for a single QBox system, but you will need to use a hub or switch to act as the connecting element in the network.

In order to use an Ethernet network you will require at least two Ethernet cables with RJ45 connectors:

- one cable each to connect the computer to the network or hub/switch.
- one cable to connect the QBox to the network or hub/switch.

Your decision to use a hub or switch should be based upon the purpose and complexity of the network. If you simply wish to make a straight connection between the computer and a limited number of QBoxes then a hub should be sufficient. If however you intend to handle other network traffic in addition to the QMaster data then you should use a switch. If you are implementing your QMaster system on an existing LAN then you may be able to use the existing LAN switches, in which case you will need one live port for the computer and one per QBox.

If you are implementing a system consisting of several QBoxes and computers it is recommended you use a LAN with a DHCP server on the network. If you are implementing a standalone network you can use a switch that incorporates its own DHCP server, use the Zeroconf setup described later in this section or manually configure the IP addresses.

NOTE: If you are going to use this system on location or for an outside broadcast you will need to provide power to the router as well.

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4.4: Configuring network connections

With the connection method chosen, you can connect QBox to QMaster and assign IP address settings. The procedure varies depending on the type of deployment:

- in a field deployment with a single QBox-computer connection, refer to section 4.4.1.
- In a studio installation connecting QBox to a network with existing infrastructure in place, refer to section 4.4.2.

CAUTION: If you are unsure about how to configure the networking on either the QBox or controlling computer, consult your network administrator.

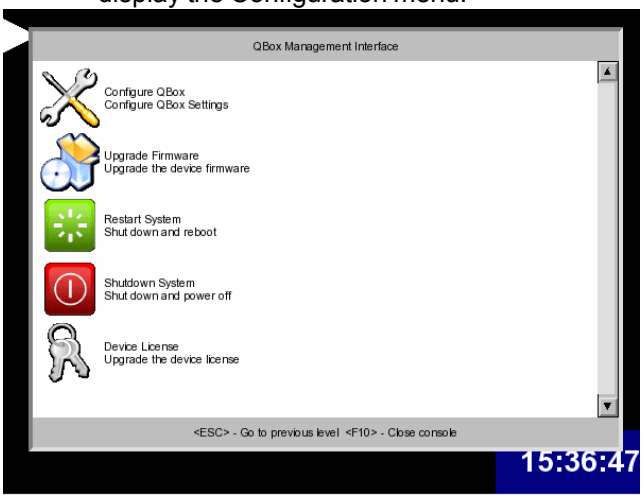
4.4.1: Configuring a direct QBox-computer connection

After the physical connection is made you must allocate an IP address to your QBox so that it can be automatically identified and located by your PC. We suggest the Zeroconf (Zero Configuration Networking) mechanism to allocate the IP address to your QBox.

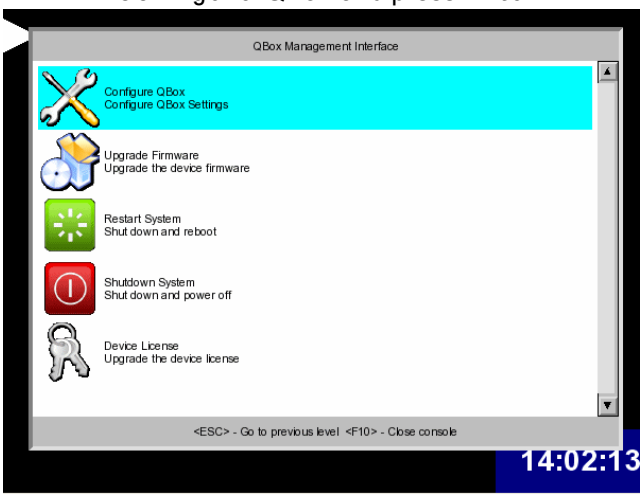
Zero Configuration Networking.

Before configuring QBox for Zeroconf, ensure that your QBox and computer are connected with an appropriate cable and that both devices are switched on and operating correctly.

1. Press the F8 key on the QBox keyboard to display the Configuration menu.



2. Use the Down arrow key to select Configure QBox and press Enter.



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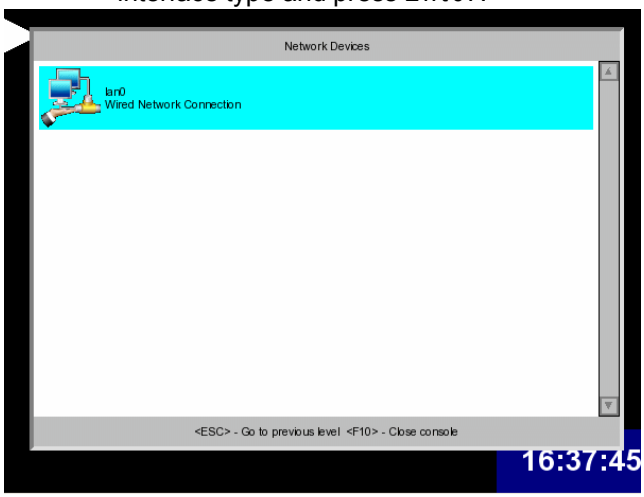
3. Use the Right arrow key to select the Network Settings option in the displayed list and press Enter.

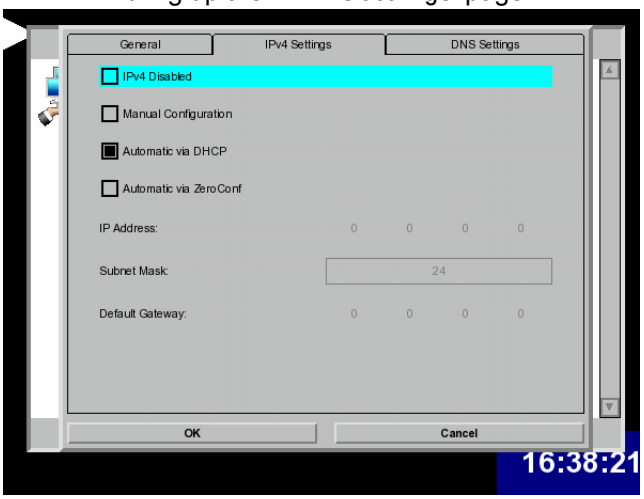
4. Use the arrow keys to select the Network Devices interface type and press Enter.

5. Use the arrow keys to select the Lan0 interface type and press Enter.



NOTE: The image above is for illustrative purposes only. You would highlight the appropriate connection depending on which type of network port you have chosen to use.

6. Press the Ctrl and Page Down key to bring up the IPv4 Settings page.



7. Press the Tab key until the Automatic via ZeroConf setting is selected. Then press the Space bar.
8. Press the Tab key to select the OK button and then press Enter. A message indicating that the network interface has been restarted is displayed on the original menu.
9. Add the name to the QBox Status Panel when configuring the QMaster to QBox interface. For detailed information about this, refer to section 4.7.

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4.4.2: Connecting QBox to an existing network

Single and multiple QBoxes can be connected to a computer on an existing network using Ethernet cables. Depending on the existing network setup, the physical connection would normally be established via a hub or switch.

Once the physical connection has been set up, you can specify IP addressing using DHCP, or assign a static IP address to the QBox.

If the organisation you work for has multiple networks, the infrastructure may include DNS servers and gateway servers Static IP address settings can be specified for these networking components, or the DHCP server can be set to obtain these settings for the client computer.

NOTE: In order for the DHCP server to obtain these settings, it must be properly set up. Make sure that a network administrator is available to set up DHCP.

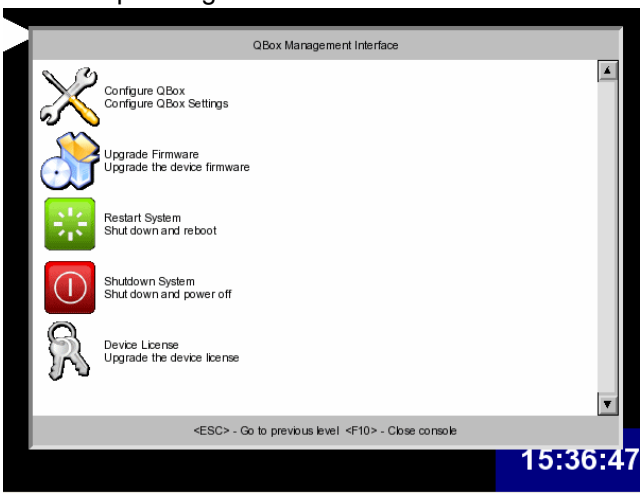
NOTE: A disadvantage of using DHCP is that the IP address of the QBox may be changed by the network after a period of inactivity, which would mean that the configuration of the controlling computers would also have to be updated to reflect the change.

DHCP IP address assignment.

Using DHCP, the IP address is automatically assigned by the DHCP server to a computer (the DHCP client) without user intervention.

A DHCP server must be running on a network, the steps outlined below should be followed.

1. Connect one RJ45 cable from the hub/ switch to the PC. Then hook up another RJ45 cable from a vacant port on the hub/ switch to a QBox.
2. Make sure that the QBox and the computer are switched on.
3. Make sure that the hub/switch is powered on and already configured to operate.
4. In QBox, access the configuration menu by pressing F8



5. Press the Down arrow key to highlight Configure QBox and then press Enter.
6. Press the Down arrow to highlight Network Settings and press Enter.

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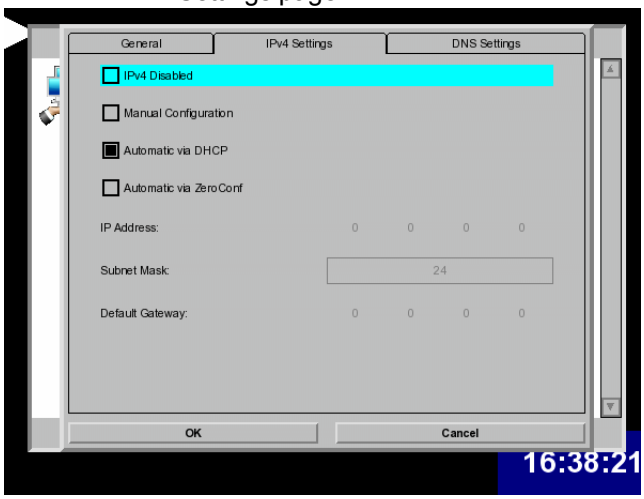
7. Press the Down arrow key until lan0 is highlighted and press Enter.
8. Press the Ctrl and Page Down keys to select the IPv4 Settings page.
9. If a DHCP server is running on your computer or on the network, ensure that Automatic via DHCP is selected in the IPv4 Settings page.



10. Press the Tab key and Enter to return to the original menu. This procedure is complete and you can move to the procedures in section 5.4.2.

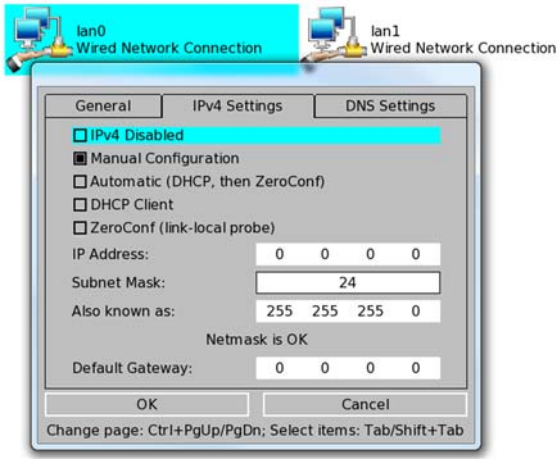
Assigning a static IP address. A static IP address can be set up if no DHCP server is running on the network.

A static IP address requires the user to manually enter a valid IP address as well as a Subnet Mask.

NOTE: Duplicate IP addresses will cause problems on the network. If static IP addresses are to be used, it is very important to ensure that they are different from other addresses already in use.

In addition, the precise settings for QBox and the servers should be manually entered if the DNS server cannot be correctly set up to provide the Gateway and DNS sever settings.

1. Connect a RJ45 cable from the Ethernet hub/switch to the computer.
2. Connect another RJ45 cable from a vacant port on the hub/switch to a QBox.
3. Make sure that the QBox and the computer are switched on.
4. Make sure that the hub/switch is powered on and already configured to operate.
5. In QBox, access the configuration menu by pressing F8
6. Press the Down arrow key to highlight Configure QBox and then press Enter.
7. Press the Down arrow to highlight Network Configuration and press Enter
8. Press the Down arrow key until lan0 is highlighted and press Enter.
9. Press the Ctrl and Page Down keys to select the IPv4 Settings page.
10. To manually set a static IP address press the Tab key and then the Space bar to select Manual Configuration. The IP Address fields become active.
11. Press the Tab key until the IP Address field is highlighted.



12. Enter an IP address for the QBox on the network then press the Tab key.
13. Enter the 24-Bit Subnet Mask for QBox on the network and then press the Tab key.

The Subnet Mask is a two digit figure relating to the number of binary 1s in the address of the mask.

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The most common subnet masks and their equivalent numbers are in the table below.

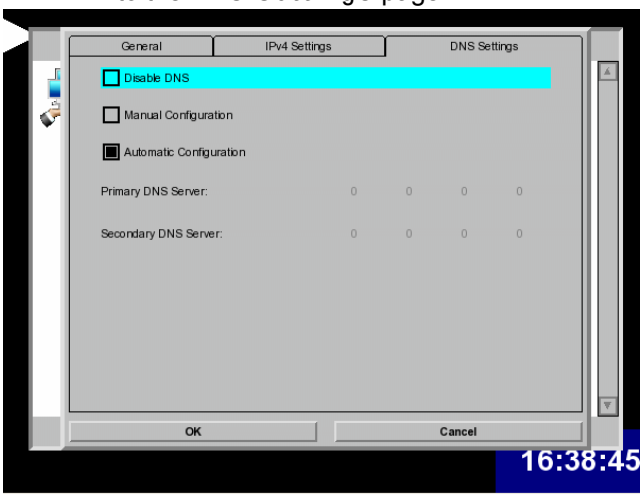
Network Address Class	Address	Subnet Mask
C	255.255.255.0	24
B	255.255.0.0	16
A	255.0.0.0	8

The other available subnet mask numbers are shown in the following list.

0	0.0.0.0	17	255.255.128.0
1	128.0.0.0	18	255.255.192.0
2	192.0.0.0	19	255.255.224.0
3	224.0.0.0	20	255.255.240.0
4	240.0.0.0	21	255.255.248.0
5	248.0.0.0	22	255.255.252.0
6	252.0.0.0	23	255.255.254.0
7	254.0.0.0	25	255.255.255.128
9	255.128.0.0	26	255.255.255.192
10	255.192.0.0	27	255.255.255.224
11	255.224.0.0	28	255.255.255.240
12	255.240.0.0	29	255.255.255.248
13	255.248.0.0	30	255.255.255.252
14	255.252.0.0	31	255.255.255.254
15	255.254.0.0	32	255.255.255.255

NOTE: If your network uses any other address, it is likely your organisation is using advanced networking protocols. Contact your IT department to request the appropriate subnet mask figure.

14. Enter the IP address for the default Gateway.
15. Press the Ctrl and Page Down key to get to the DNS Settings page



16. Select Manual Configuration by pressing the Tab key and then the Space bar. The Primary DNS Server field is highlighted.
17. Press the Tab key until the Primary DNS Server field is selected.
18. Enter an IP address for the Primary DNS Server and then press the Tab key.
19. In the selected Secondary DNS Server field, enter the IP address for the secondary DNS server. Press the Tab key until OK is selected and then press Enter. A message indicating that the network interface has been restarted is displayed.
20. Repeat these steps for each of the QBoxes added to the network, ensuring that you have enough vacant ports on the hub/switch and available RJ45 cables to connect them all.

4.5: Time settings on a QBox

Time for QMaster and QBoxes is calculated using Universal Coordinated Time (UTC) but the appearance of the time displayed on screen is determined by the time zone setting of the QBox and the operating system of the computer running the QMaster software.

If you want all devices to show the same time, they must all be set to the same time zone.

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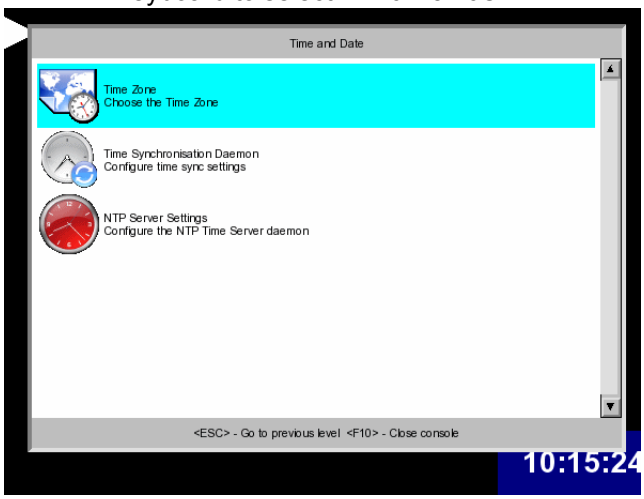
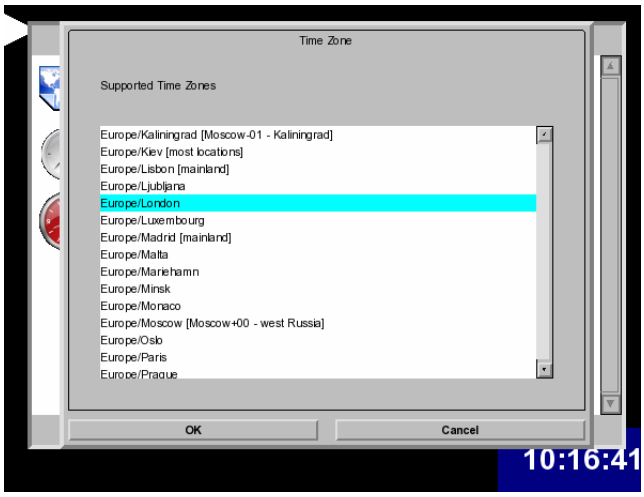
Selecting a time zone for your QBox.

1. From the `Time and Date` configuration options window use the arrow keys on the keyboard to select `Time Zones`.



2. Use the arrow keys to select the required time zone.



Selecting a time zone for the QMaster computer.

Time zone information for a computer can be set using the `Date and Time` control accessed using the Control Panel command of the Windows operating system:

`Start >> Control Panel >> Date and Date`

For detailed information about network time configuration, refer to Appendix C: Time Synchronisation.

4.6: Using a scroll control device to configure QBox

If you are using your QBox in a stand-alone situation, a scroll control device—with at least five-buttons and a scroll wheel—may be used to access and modify some of the configuration settings of the QBox.

This section refers to using the Contour Design ShuttlePRO and ShuttleXpress controllers utilising both the buttons as well as the jog wheel.

NOTE: It is recommended that you use a USB controller as it must be able to be connected and disconnected without having to restart QBox.

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4.6.1: Altering QBox configuration using a ShuttlePRO controller

The ShuttlePRO control uses a set of buttons and a jog wheel for opening and closing the display menu and selecting menu options. The actions of the buttons are illustrated below. Many of the buttons have multiple functions.

1. Ensure that QBox is turned on.
2. Connect the ShuttlePRO control to a USB port in QBox.
3. Press the button for bringing up the display menu.
4. To select the next menu item, either

- press the button for selecting menu options, or
- turn the jog wheel to the right.

5. To select the previous menu item press the button for selecting the previous menu item.
6. Press the button to bring up the submenu for the selected item.
7. If in the submenu for adjusting display settings, press the button for changing the setting level. A dialogue is displayed that lets you change the setting level, for example the brightness level.

- To increase the setting level, click the button to increase the setting level.
- To decrease the setting level, press the button to decrease the setting level.

8. To select another setting, press the button that returns to the previous menus and repeat steps 6 and 7.
9. To exit the menu, press the button for selecting the previous menu multiple times until the menu clears.

4.7: Configure the QMaster to QBox interface

This section describes how you configure the connection between the QMaster software and a QBox. You must have a scroll control ready when configuring this interface.

1. Plug the license dongle into a USB port on the computer running QMaster.
2. Double-click the QMaster icon. At this stage QMaster checks for the presence of the license dongle and launches the application in QBox operation mode.
3. If you are testing or transitioning from an Autocue IMT card system to a QBox system you may have both an IMT card and the QMaster dongle inserted in the computer. QMaster will identify the presence of both items and will give you the option to choose in which mode you wish to commence operation.

4. Select QBox to continue with this configuration and open the QMaster software.

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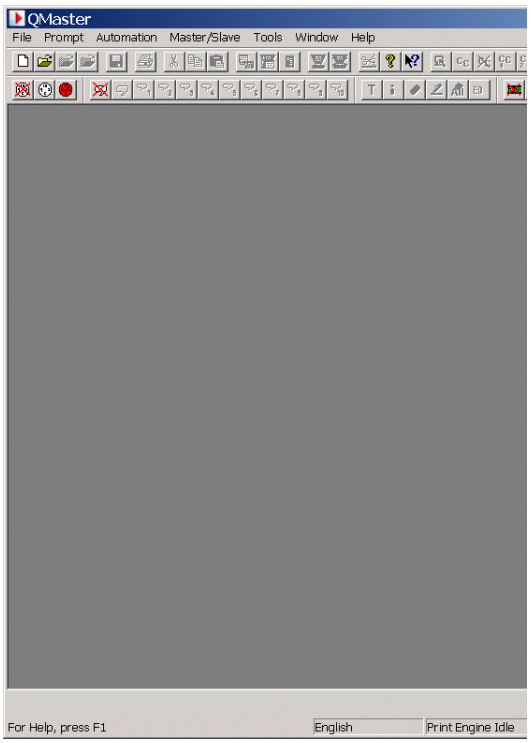
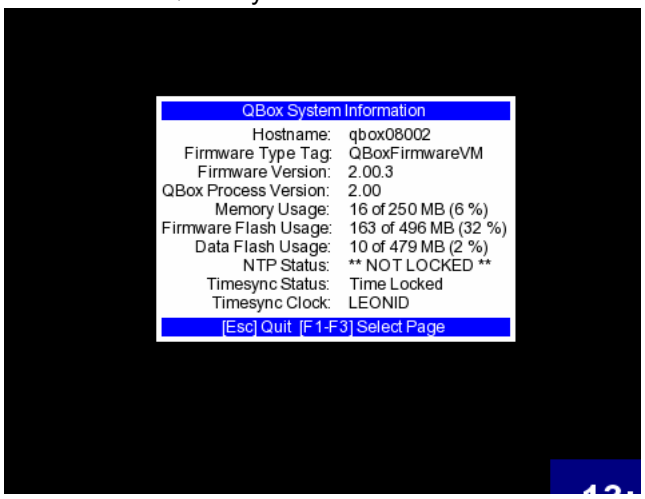
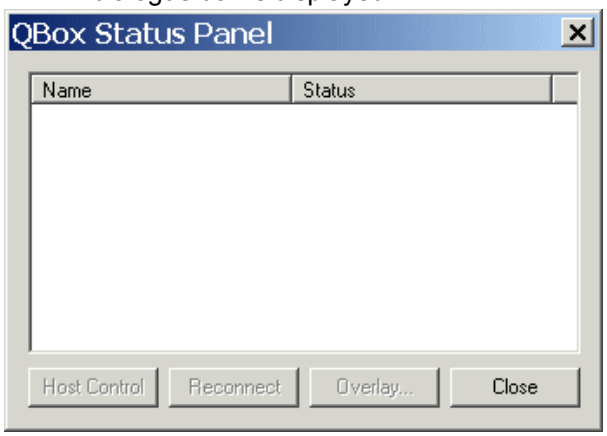
5. You will be presented with a blank grey screen with menu bars at the top of the screen.



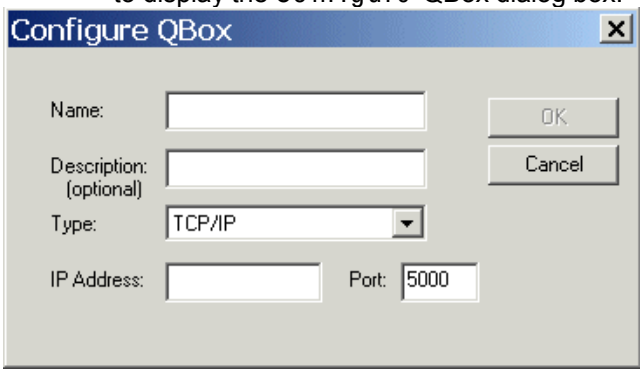
6. Open the Configure Scroll Controls window by selecting Tools >> Options.
7. Click on the [+] sign to expand the QBox Prompt Engines menu and select Scroll Controls.
8. Plug in a scroll control.
9. Select a scroll control and click OK.
10. Confirm the QBox IP address by pressing the F5 key on the QBox keyboard to display the QBox System Information.



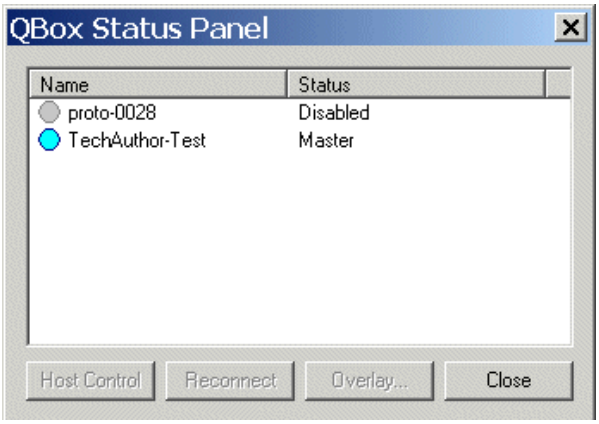
11. Select the QBox Status Panel from the Prompt menu. The QBox Status Panel dialogue box is displayed.



12. Right-click in the dialog box and select Add to display the Configure QBox dialog box.



13. In the Name field type an identifier for the QBox if desired.
14. Enter an optional description in the Description field.
15. Enter the details for your QBox (that you noted in step 10 above) in the IP Address field and click OK. The QBox Status Panel is displayed again.
16. Click on Reconnect. The icon next to your QBox name changes to a light blue colour to show that a connection has been established, as illustrated below.



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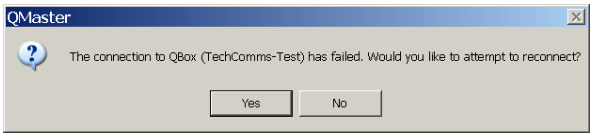
Configuration of your QBox is complete and you can now use it to control prompting.

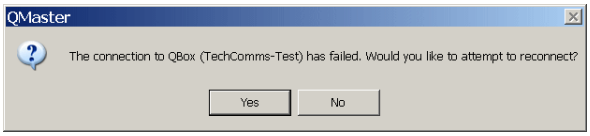
4.7.1: Loss of network connections

The network connection between a QBox and the QMaster software will be broken by either the network plug being removed or the software on either device being shut down.

Physical disconnection. If the network plug is disconnected from a QBox or the computer running the QMaster software, a warning message will be displayed that this loss has occurred and ask if you want to reconnect.



QBox operating software failure. If the QBox operating software fails or is rebooted, the computer running the QMaster software will display a warning message that the connection to the QBox has failed and ask if you want to reconnect.



NOTE: Before clicking Yes on the message dialog, you must make sure that the QBox has completed the full restart procedure. This is indicated by either the last script being displayed or the disappearance of initialisation progress information.

If you click Yes the current rundown will be displayed in the Script Editor window and on the prompter display unit.

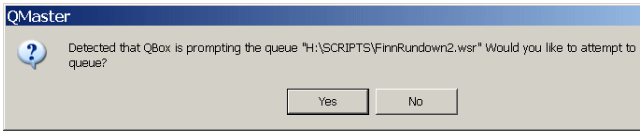
NOTE: The display will default to the start of the rundown.

QMaster software failure. If the QMaster software fails or is shut-down while you are prompting a script, the QBox will continue scrolling the script using whatever settings were controlling the display at the time of the failure.

The QBox becomes a standalone prompt engine which may be operated using any scroll control device connected to it.

NOTE: Depending on the nature of your network infrastructure, including and the number of hubs, switches or routers between the computer and the QBox and natural latency in the network, it may take up to 30 seconds before the QBox ascertains that there is no QMaster software controlling it.

When QMaster restarts, the software checks if a QBox is currently prompting a script and will ask if you want to re-link to that rundown.



If you click Yes the relevant rundown will be displayed in the Script Editor window at the current position in the script but with scrolling stopped.

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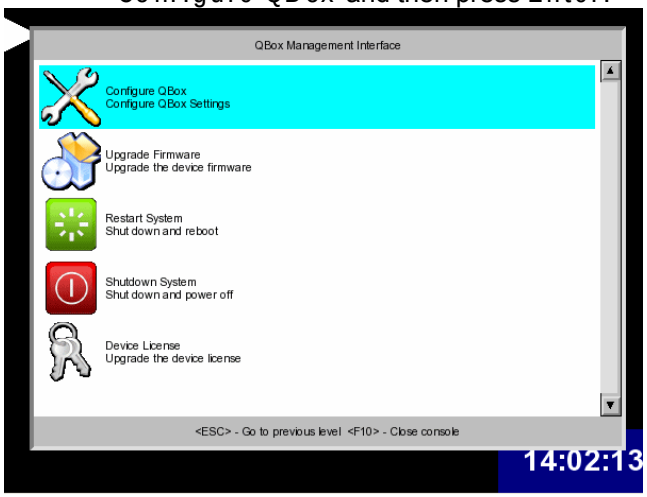
4.8: Configure QBox scroll controls

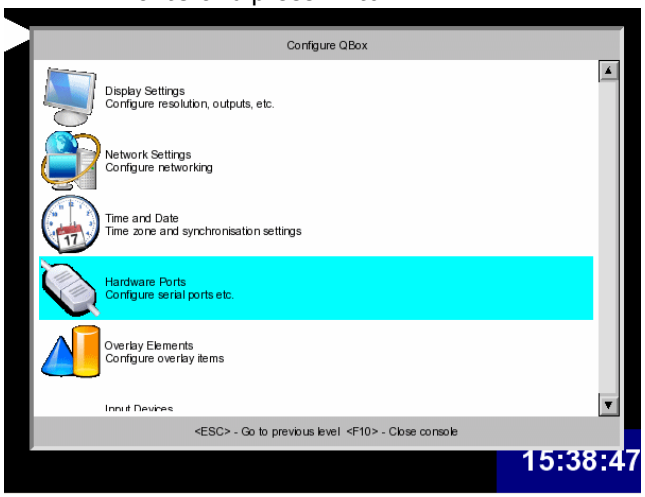
Scroll controls may be connected to either the computer running the QMaster software or attached directly to the QBox.

4.8.1: Enable a serial port

1. Attach a keyboard to the QBox and access the configuration menu by pressing F8.
2. Press the Down arrow key to highlight Configure QBox and then press Enter.

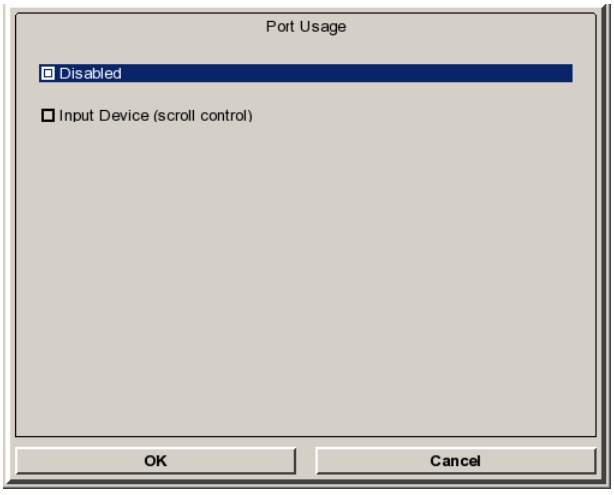


3. Use the arrow keys to highlight Hardware Ports and press Enter.

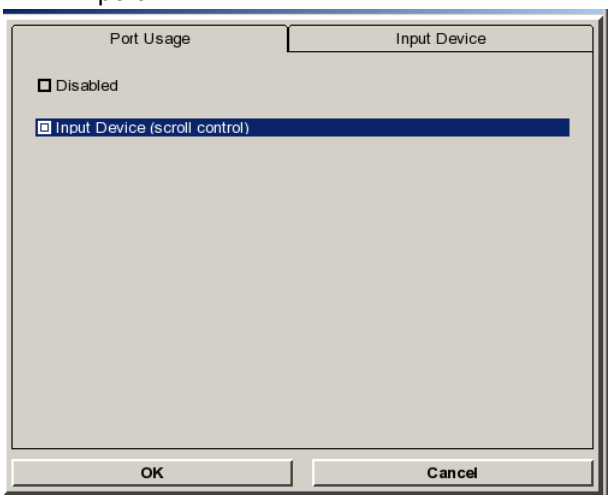


4. Use the Arrow keys to select the required serial port and press Enter.

The first time that a serial port is configured it will be shown as disabled.



Use the Tab key to highlight the Input Device entry and press the space bar to enable the port.



When a port is enabled, the Input Device tab becomes visible. Use the Ctrl and Page

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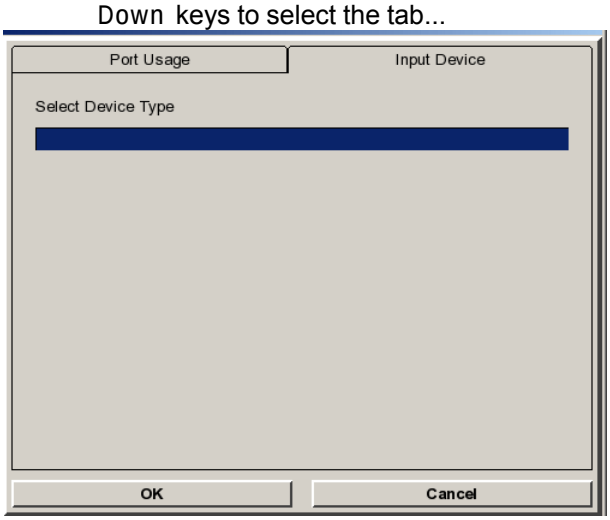
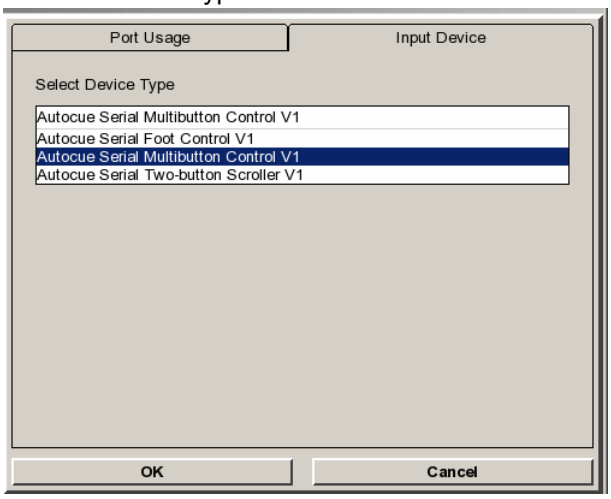
Down keys to select the tab...



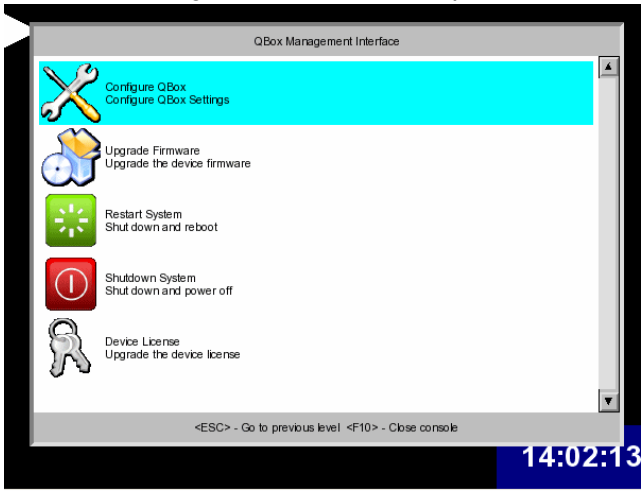
Press the down Arrow key to highlight and select a type of scroll controller.



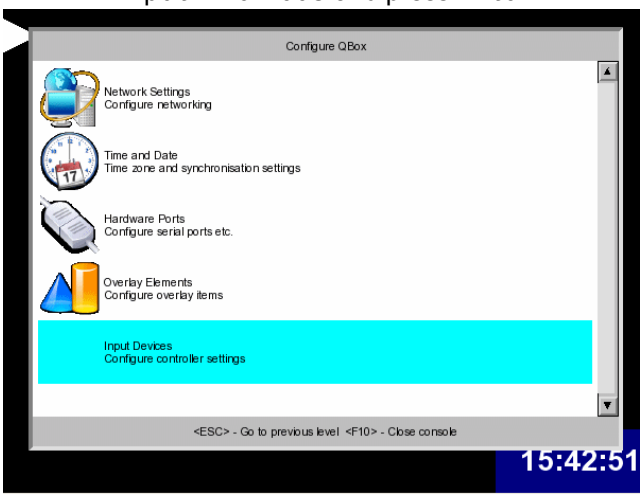
5. Repeat the steps outlined in this section for each serial port available on your QBox.

4.8.2: Configure a controller attached to a serial port

1. Attach a keyboard to the QBox and access the configuration menu by pressing F8.
2. Press the Down arrow key to highlight Configure QBox and then press Enter.

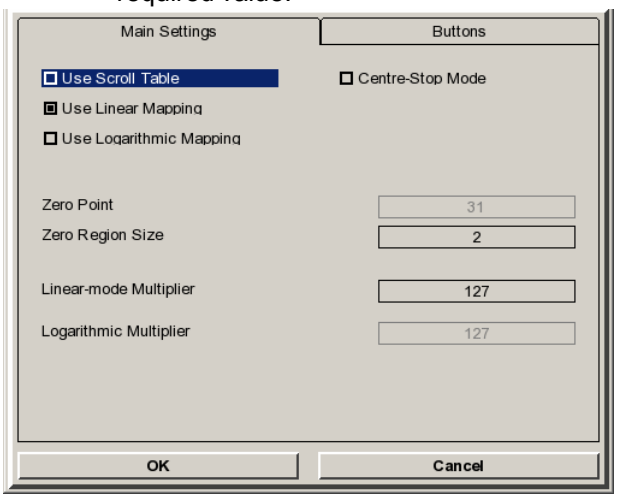


3. Use the arrow keys to highlight Input Devices and press Enter.



4. Use the arrow keys to highlight the required device type and press Enter.

5. Use the Tab key to highlight each parameter to be set and either use the space bar to enable a setting or enter the required value.



NOTE: Use the Backspace key to delete any information already displayed.

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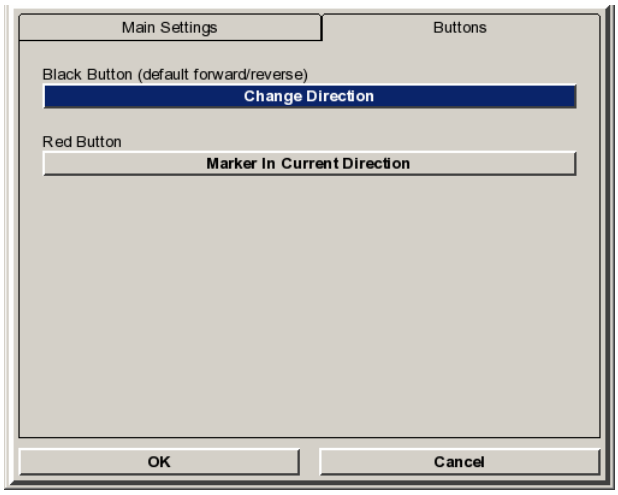
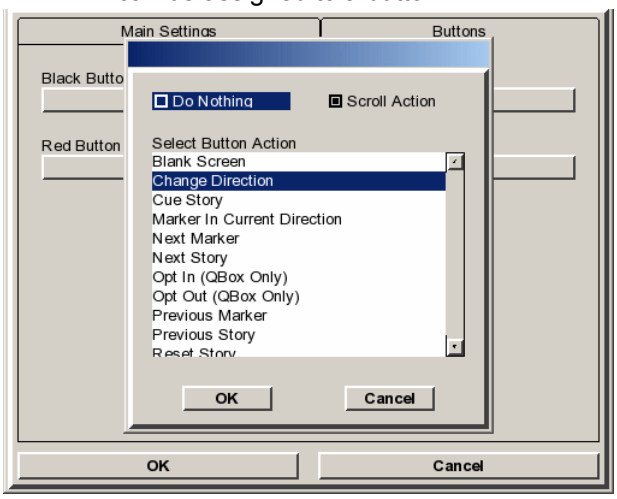
6. Use the Ctrl and Page Down keys to select the Buttons tab.



7. Press Enter to display a list of actions that can be assigned to a button.



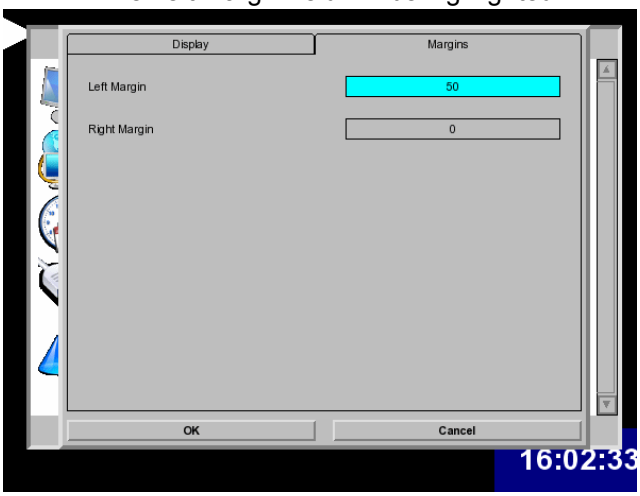
8. Use the Arrow keys to highlight an action and press Enter to assign it.
9. Repeat the steps outlined above for each button on the particular type of controller.

4.9: Configure QBox display output

In addition to the resolution and output mode, you can also configure the margins of the QBox display output.

1. Attach a keyboard to the QBox and access the configuration menu by pressing F8.
2. Press the Down arrow key to highlight Configure QBox and then press Enter.
3. Use the arrow keys to highlight Display Settings and press Enter.

4. Press the Ctrl and Page Down keys to select the Margins tab.
   The Left Margin field will be highlighted.



5. If necessary, press the Backspace key to delete the current entry and then enter the number of pixels required for the left margin.
6. Press the Tab key to highlight the Right Margin field.
7. If necessary, press the Backspace key to delete the current entry and then enter the number of pixels required for the right margin.
8. Press the Tab key to highlight the OK button and press Enter to confirm changes.

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NOTE: You must reboot your QBox in order for the changes to take effect.

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SECTION 5: Upgrading QBox Components

You will need to upgrade your Autocue products when new features and enhancements are released for QBox firmware

When features are made available, Autocue customers are informed and requested to upgrade the products they have purchased.

Follow the procedures outlined in this chapter and any additional steps that are contained in the notification email or letter.

CAUTION: After upgrading, ensure that the version numbers of your software and firmware are compatible. If you have any doubts, contact Autocue Technical Support for information.

5.1: QBox upgrades

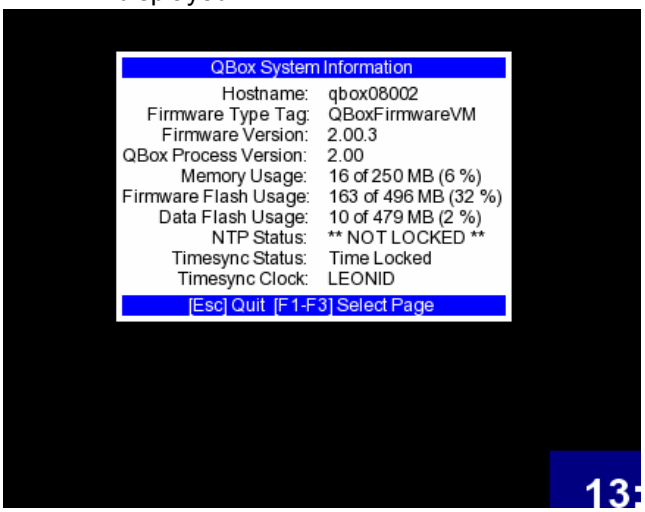
Your QBox requires upgrading in the following situations:

- When the trial period for your QBox use has expired
- When new QBox firmware versions are made available

Upgrading QBox involves either adding configurations for a new version to your existing QBox, or changing the license information, using a USB drive.

5.1.1: Firmware upgrade

1. Contact Autocue to request a QBox upgrade.
   Upgrades will be either emailed to you or you will be given access to the Autocue web site where you can download it. The upgrade files are in a compressed format contained in a ZIP file.
2. Extract the files from the zip into a folder labelled `repository` at the root of a clean USB key.
3. Press [F5] on the keyboard. QBox system information similar to below will be displayed.



4. Ensure that your QBox is NOT in prompt mode.
5. Plug the USB key containing the extracted files into a USB port on the QBox. Wait approximately 10 seconds for the USB key to be registered.
6. Press [F8] on the keyboard connected to the QBox to open the configuration menu.

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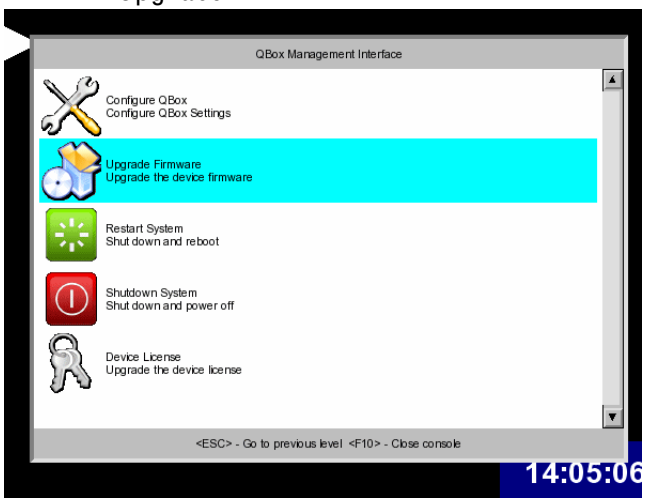
7. Use the arrow keys to select `Firmware Upgrade`.

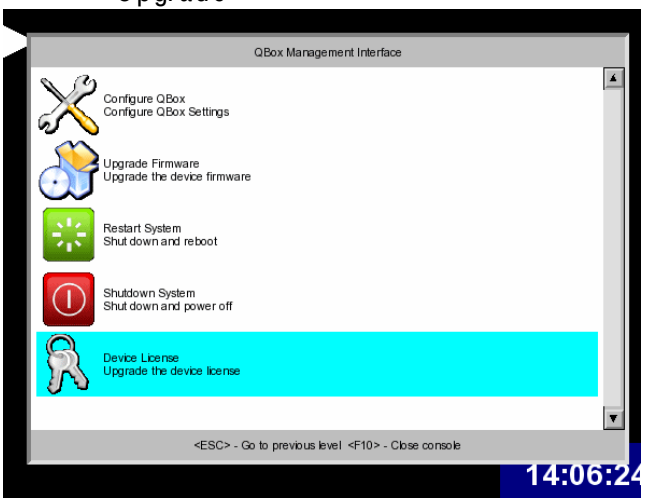


8. The display screen will indicate that the files for the new version are downloaded and copied to your QBox.
9. Check that your QBox has been updated by pressing F5 when the QBox is in prompt mode. The firmware version will be a higher number if the upgrade has been successful.

5.1.2: Licence upgrade

If you are upgrading QBox from a trial version you will require a new licence.

1. Contact Autocue to request a QBox permanent licence.
   New licences will be emailed. The files will be in a compressed format contained in a ZIP file.
2. Extract the new licence from the zip onto the root of a clean USB key.
3. Plug the USB key containing the extracted file into a USB port on the QBox. Wait approximately 10 seconds for the USB key to be registered.
4. Press F8 on the keyboard connected to the QBox to open the configuration menu.
5. Use the Down arrow key to select `Licence Upgrade`



6. The display screen will indicate that the files for the new version are downloaded and copied to your QBox.
7. Check that your QBox has been updated by pressing F5 when the QBox is in prompt mode. The licence expiry information will no longer be displayed.

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APPENDIX A: Multihead Prompting

Using more than one QBox on the same network in a studio allows each presenter to independently scroll a script while a show is on air.

NOTE: Multihead prompting functionality can be implemented where you have purchased the appropriate licence or upgrade.

During a broadcast, there is often more than one presenter reading from a script. A simple example would be a news bulletin where there is a newsreader and sports presenter. Deploying two QBoxes in the studio, each connected to same computer running the QMaster software, allows each presenter to have local control of their copy of the script or rundown while the other presenter is on air.

For example, while the newsreader is reading the news items, the sports presenter could scroll ahead to her part of the bulletin to check what she is to read. Either the sports presenter or the prompting operator would be able to switch back so that the script or rundown is at the correct point when the sports presenter delivers her part of the bulletin.

The network and wireless capabilities of QBox supports a widely distributed news broadcast such as presenters in the main studio, a business journalist situated in a small studio at the stock exchange and a weather presenter at a remote exterior location. Each would have their own QBox linked to the same network and would be able to review their part of the bulletin independently. One QBox would be designated as the master device and all others would be linked to it.

A.1: Configuring QMaster for multi-head prompting

CAUTION: It is essentially that all elements of your prompting system are accurately time synchronised. For information about this topic, refer to Appendix F: Time Synchronisation.

1. Make sure that QMaster is running on your computer.
2. Connect more than one QBox to the computer running QMaster or attach an additional unit to an existing network.
3. Open the QBox Status Panel in QMaster.
4. Right -click on the QBox Status Panel and select Add.
5. Add the name of the new QBox where multi-head functionality is to be set up.
6. Specify the master QBox. Any QBox not specified as the master is a slave unit.
7. If required, enter a description for the QBox.
8. Select the connection type in the Type list box.
9. Enter the IP address and port number for the new QBox.
10. Repeat for each of the QBoxes.

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APPENDIX B: Time Synchronisation

When operating more than one computing devices that are linked it is advisable to have them all refer to the same time. This is important where, for example, a news show takes place in different studios across the globe.

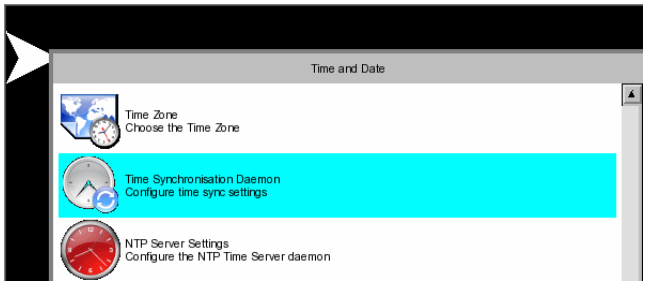
B.1: Time signals

QBox and QMaster can obtain a time signal from either a network time protocol (NTP) server or from the Time Synchronisation application from Autocue.

It is essential that you use a time signal to ensure that your devices are correctly and accurately synchronised.

One machine must be designated as the time signal source and all other machines set to refer to that time signal.

When you configure your QBox you should choose either the NTP or Time Synchronisation Daemon buttons.



It is recommended that you use the NTP option only if you are connecting to an existing IT network which already has a nominated NTP source defined for it.

Default settings for QBox. When shipped, Autocue QBoxes are configured to have no NTP time sources and the Time Synchronisation Daemon is set to Automatic Network Discovery. This enables you to simply connect a QBox to a network or computer and it will find the best time source available and synchronise to it. Time source computers should have Bonjour software, or a similar application, installed.

B.1.1: Operational scenarios requiring synchronisation

There are different synchronisation options depending on how and where you are installing your QBox.

In addition to the scenarios outlined below there are more complex arrangements of computing hardware that can be set up. If you feel that how you are networking your devices is not covered by the ones listed, contact the Support at Autocue.

Adding a QBox to an existing network with NTP. If your organisation has a well established and configured IT network it is likely that you will have a NTP time source available. For detailed information about configuring NTP settings, refer to section B.3. Contact your own IT department to obtain details of the required IP addresses and related settings for the time source.

NOTE: If you are moving an existing QBox to a different network, it is recommended that you remove all time sources from the list associated with Time Synchronisation Daemon.

Standalone network with one or more QBoxes. If you are establishing a self-contained network, it is recommended that you either:

- Install the Bonjour software on the computer and configure the QBoxes to use the Time Synchronisation Daemon with the time source set to Automatic Network Discovery

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on the QBox and the computer configured with Local Clock as the time source.

or

- Use the local clock of the computer and specify Network Host as the time source on the QBox and manually enter the IP address or host name of the computer.

NOTE: When you use either of these methods you should remove all time sources that may have been configured for use with NTP.

Adding a QBox to an existing network with no synchronisation. Install the Time Synchronisation Daemon on a machine on the network, for example the computer running the QMaster software. Configure this machine so that Local Clock is set as the time source for it.

You should then set all other hardware on the network to obtain a time signal from the machine with the master time source. You can does this by configuring the QBoxes to use either Automatic Network Discovery or select Network Host source and specify the host name or IP address of the computer with the master time source.

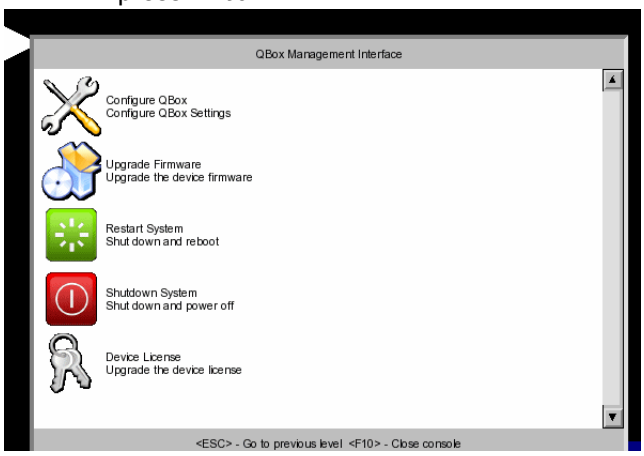
NOTE: When using this method you should remove all time sources that may have been configured for use with NTP.

NOTE: If you have a spare QBox used for backup purposes you should pre-configure it to automatically search for a time source on a network so that it will synchronise with an existing time source.

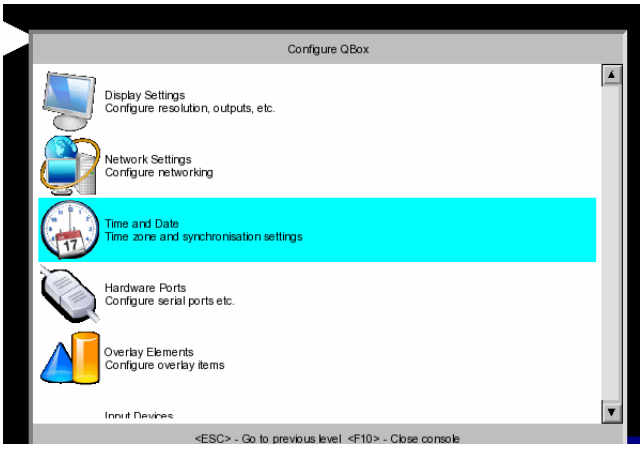
B.2: Time Synchronisation Daemon

To select time settings on a QBox follow the steps outlined below.

1. With an operating QBox, press F8 on the keyboard attached the unit.
2. Select the Configure QBox option and press Enter.



3. Use the arrow keys on the keyboard to select Time and Date.



4. Press Enter on the keyboard.

The QBox recognises three types of time signal source:

Auto Network Discovery. This method uses the pre-installed Bonjour software on the QBox to locate all Time Synchronisation Daemons on the local network and synchronise with the best time source.

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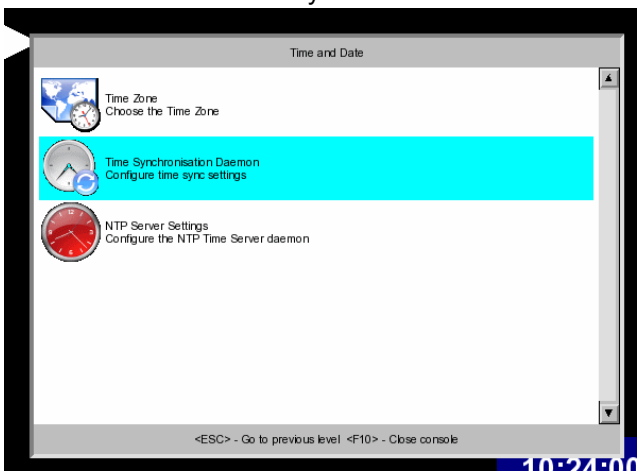
If you want to use a particular computer as a time source, install the Bonjour software on it so that it can be located by your QBox.

Local Clock. Selecting the Local Clock option on the QBox sets the device as the master time source.

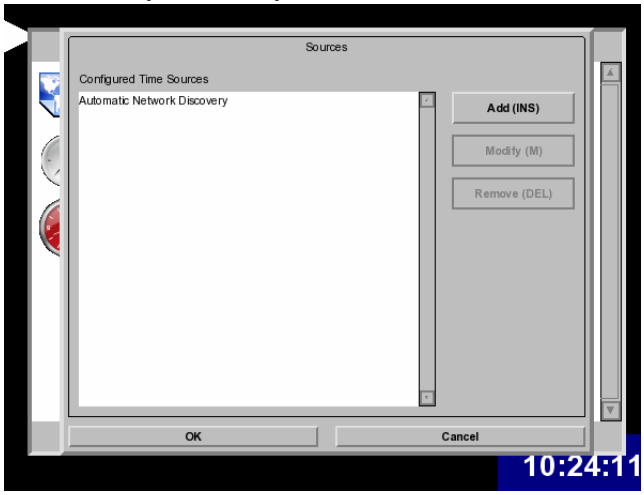
Network Host. When the Network Host option is selected you will have to manually enter the IP address and host name of the machine that is to be used as the time signal source.

B.2.1: Synchronisation options

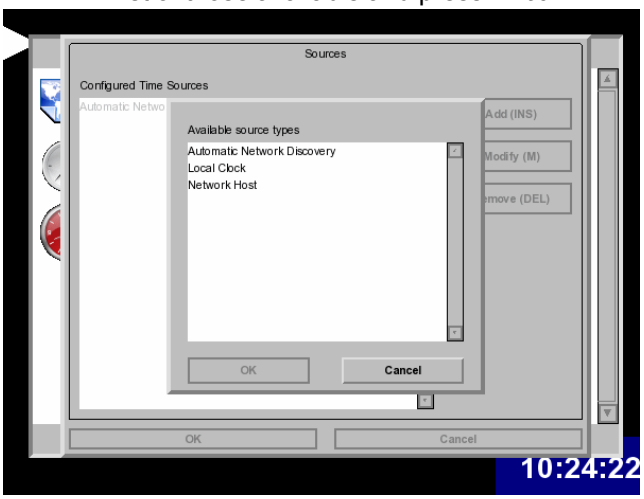
1. From the Time and Date configuration options window select Time Synchronisation Daemon and press Enter on the keyboard.



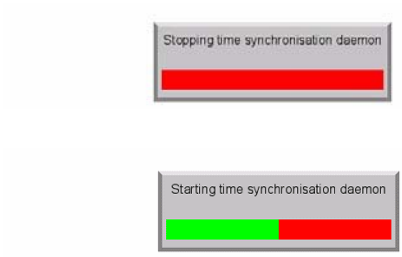
2. The Sources dialog is displayed. Press the Tab key to move the cursor to the Add button on the screen or press the Insert key on the keyboard.



3. Select the type of source required from the list of those available and press Enter.



4. The selection will be added to the list of Configured Time Sources. Click OK or press Enter.
5. The Time Synchronisation Daemon will automatically stop and then restart.



B.2.2: Computer firewall settings

Your computer or network firewall settings may prevent the effective operation of the Time Synchronisation Daemon. You must configure your firewall hardware or software to either:

- allow UDP packets on port 3104

or

- allow the Time Synchronisation Daemon full access

NOTE: Different manufacturers of firewalls implement controls in various ways. Contact your own IT department for assistance or to obtain details of the relevant settings.

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B.3: NTP Server Settings

The following NTP server functions can be set in the onscreen menus:

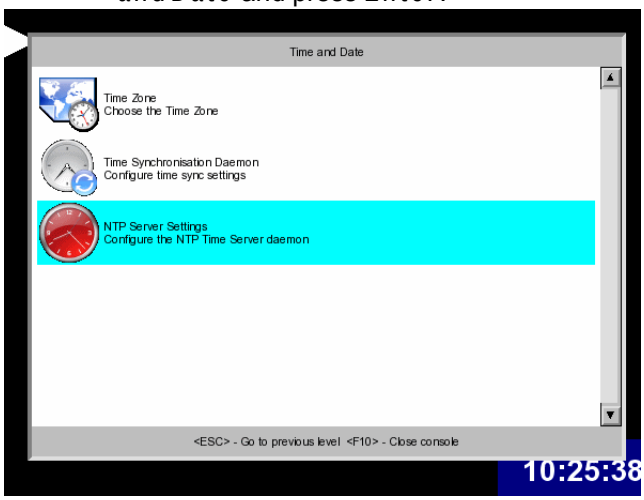
- Adding NTP servers to an existing NTP server list.
- Disabling the iBurst function
- Specifying an undisciplined local clock.

NOTE: When you make changes to any NTP setting, messages are displayed stating that the NTP daemon has been stopped and then restarted.

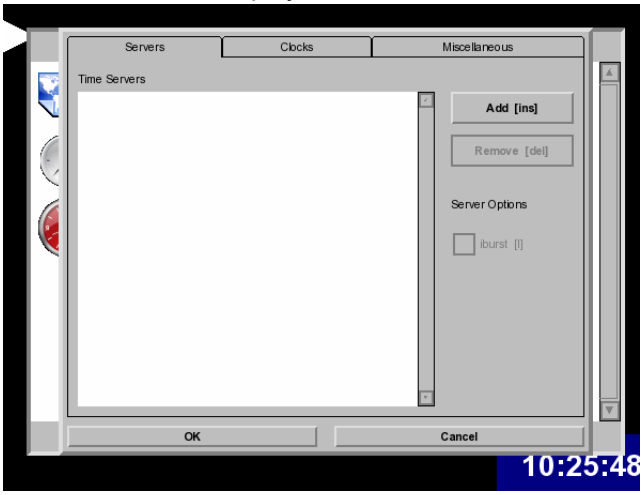
B.3.1: Adding servers to an existing NTP server list

NOTE: The list of available NTP servers is empty for a new QBox.

1. Open the onscreen menu by pressing the F8 key on the keyboard attached to the QBox.
2. Select the Configure QBox option and press Enter.
3. Use the Right arrow key to select Time and Date and press Enter.

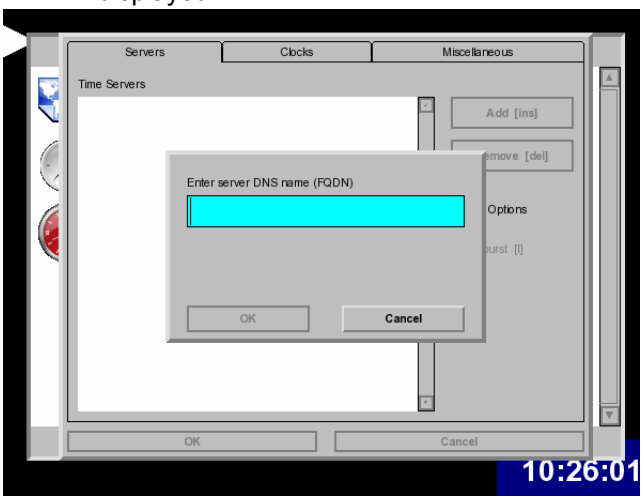


4. Select NTP Server Settings and press Enter to display a list of time servers.



5. To add a time server, press the Tab key to highlight the Add [ins] button and press Enter or press the Insert key on the keyboard.

   A dialogue box is displayed requesting the DNS name. Press the Tab key. The FQDN (Fully Qualified Domain Name) DNS name is displayed.



6. Enter the FQDN (Fully Qualified Domain Name) DNS name. The FQDN allows the name of the server to be resolved.
7. Press the Tab and then Enter key to confirm the action. The DNS server is entered into the list.

NOTE: After your QBoxes and computers have been configured to use an NTP time source, it takes approximately one hour for the

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software to calibrate itself and calculate drift information.
During this time, do not switch off, log off your computer nor allow it to go into hibernation mode.

B.3.2: Disabling the iBurst function

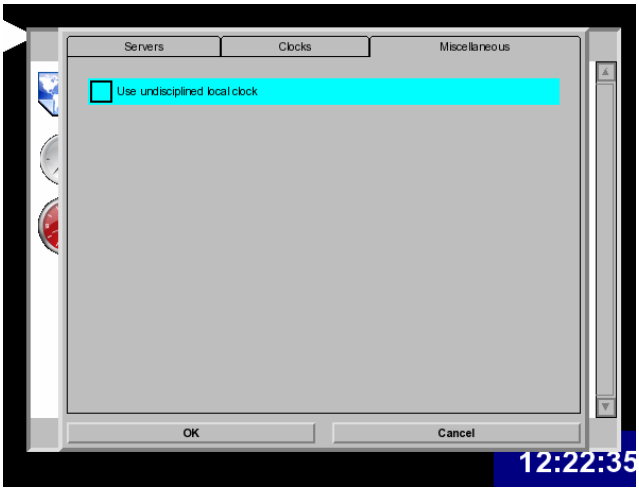
The iBurst function can be disabled to manage network traffic according to the specific configurations of the network deployment.

1. Bring up the onscreen menu by pressing the F8 key.
2. Select Configure QBox and press Enter.
3. Use the Right arrow key to select Time and Date, and press Enter.
4. Select NTP Server Settings and press Enter to display a list of time servers.
5. To turn off the iBurst option, press the Tab key and press the Space bar.
6. Press Enter. A message is displayed in the Configure QBox menu that the NTP daemon has been restarted.

B.3.3: Using an undisciplined local clock

An undisciplined local clock allows a QBox to be a self-referencing time source.

1. Bring up the onscreen menu by pressing the F8 key.
2. Select Configure QBox and press Enter.
3. Use the Right arrow key to select Time and Date, and press Enter.
4. Select NTP Server Settings and press Enter to display a list of time servers.
5. Hold down the Ctrl key and press the Page Down key twice to go to the Miscellaneous tab.



6. Press the Space key to select the Undisciplined Local Clock option.
7. Press the Tab key and then the Enter key to confirm the action.

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FCC Certification

FCC Notice

This product complies with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference with radio communications. Operation of this product in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

FCC Warning

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Declaration of Conformity

This product complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1.This product may not cause harmful interference.

2.This product must accept any interference received, including interference that may cause undesired operations.

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